

TY-J Type

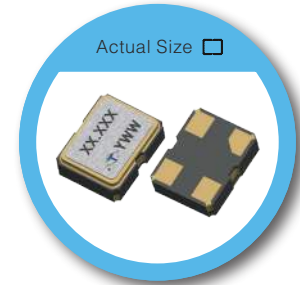
2.5 X 2.0 mm SMD CMOS Temperature Compensated Crystal Oscillator

FEATURE

- Tolerance: ± 2 ppm accuracy @25°C, ± 2.5 ppm over -40°C to +85°C-
- LVCMOS Output Logic
- Tight symmetry (45 to 55%) available.
- Operation voltage: 1.8V, 2.5V, 3.3V.
- Tri-state enable/disable.
- Femto second phase jitter and -145dBc/Hz at 10kHz offset

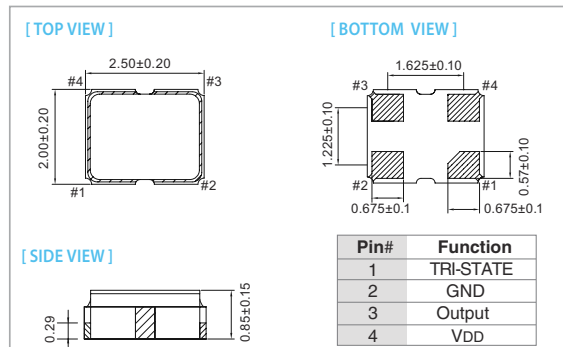
TYPICAL APPLICATION

- Wireless Connectivity
- Smart grid

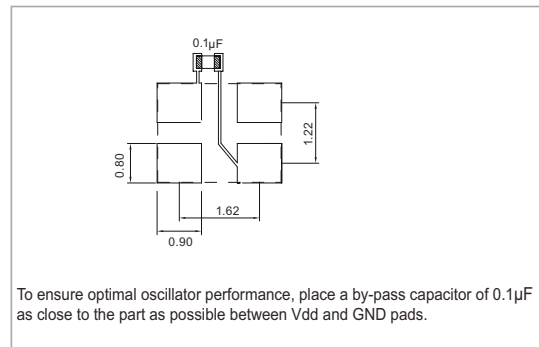


RoHS Compliant

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



ELECTRICAL SPECIFICATION

Parameter	3.3 V		2.5 V		1.8 V		Unit
	Min.	Max.	Min.	Max.	Min.	Max.	
Supply Voltage Variation (VDD) $\pm 5\%$	3.135	3.465	2.375	2.625	1.71	1.89	V
Frequency Range	9.5	60	9.5	60	9.5	60	MHz
Supply Current $9.5 \leq F_o \leq 60$ MHz	—	10	—	7	—	5	mA
Duty Cycle	45	55	45	55	45	55	%
Output Level (CMOS) Output Hight(Logic"1")	2.97	—	2.25	—	1.62	—	V
Output Low(Logic"0")	—	0.33	—	0.25	—	0.18	
Transition Time : Rise/Fall Time+	—	8	—	8	—	8	nSec
Start Time	—	5	—	5	—	5	mSec
Tri-State(Input to Pin 1) Enable(High voltage or VDD)	2.31	—	1.75	—	1.26	—	V
Disable(Low voltage or GND)	—	0.99	—	0.75	—	0.54	
RMS Phase Jitter (integrated 12kHz ~ 20MHz)	—	1	—	1	—	1	pSec
Phase Noise @ 26MHz	10Hz	—	-80	—	-80	—	dBc/Hz
	100Hz	—	-110	—	-110	—	
	1kHz	—	-130	—	-130	—	
	10kHz	—	-145	—	-145	—	
Aging (@25°C 1st year)	—	± 1	—	± 1	—	± 1	ppm
Storage Temp. Range	-55	125	-55	125	-55	125	°C

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position
 +Transition times are measured between 10% and 90% of VDD, with an output load of 15pF

FREQ.STABILITY vs. TEMP. RANGE

Temp. (°C)	ppm		
	± 2.5	± 5.0	± 10.0
-40 ~ +85	○	○	○
-40 ~ +90	△	○	○
-40 ~ +105	×	△	○

* ○: Available △:Conditional X: Not available

Note: not all combination of options are available. Other specifications may be available upon request.

Specifications subject to change without notice.